

# PATENT COOPERATION TREATY

# PCT


## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 05 DEC 2005

PCT

Applicant's or agent's file reference B1.S0030.12WO22	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/IT2004/000645	International filing date (day/month/year) 23.11.2004	Priority date (day/month/year) 25.11.2003	
International Patent Classification (IPC) or national classification and IPC D04B23/16			
Applicant SANTONI S.P.A. et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  13.09.2005		Date of completion of this report  02.12.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Sterle, D  Telephone No. +49 89 2399-2071	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

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**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-13 as originally filed

**Claims, Numbers**

5-13, 14(part) as originally filed  
1-4, 14(part), 15-21 received on 08.09.2005 with letter of 07.09.2005

**Drawings, Sheets**

1/2, 2/2 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-16
	No: Claims	17-21
Inventive step (IS)	Yes: Claims	1-16
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-21
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

Comments concerning section V:

1. The closest prior art is represented by DE-A-2 843 264 which will be referred to as D1 hereinbelow, relating to a method for producing textile items with tricot or raschel or crochet knitting machines (see Figs. 2 and 3) for warp knitting, having at least a first bed (8) of needles (4) comprising the step of manufacturing at least a textile item (see page [=p.] 9, lines [=l.] 7-13).

The claimed method differs therefrom by the step of moving at least said first needle bed during said step of manufacturing said textile item.

Similarly, D1 discloses a tricot or raschel or crochet knitting machine (see Figs. 2 and 3) for warp knitting, comprising at least a first needle bed (8). Again, the knitting machine according to independent claim 8 differs therefrom in that said first needle bed is mounted movably onto the loom which comprises means for moving selectively said first needle bed during operation of the knitting machine.

As evident from the description (p.7, l.22-25) the term "needle bed" in these claims designates a machine member commonly also referred to as a knock-over plate or knock-over bar but not a needle bar, similar to the terminology used in US-A-3 566 621 (see column [=col.] 3, l.50, and Fig.4).

As a consequence, the subject-matter of independent claims 1 and 8 would appear to comply with the requirements of Article 33(2) PCT.

2. None of the cited documents discloses the feature of moving at least said first needle bed during said step of manufacturing said textile item or a first needle bed mounted movably onto a loom comprising means for moving selectively said first needle bed during operation of the knitting machine. Due to lack of indication, inclusion of these features in a method or device otherwise according to D1 is not considered obvious.

The subject-matter defined by independent claims 1 and 8 would therefore appear to equally meet the requirements of Article 33(3) PCT.

3. The embodiments of the invention according to subclaims 2 to 7 and 9 to 16 contain all the features of the subject-matter defined by the independent claim to which these claims refer. As a consequence, the subject-matter of these claims would also appear to meet the requirements of both the Articles 33(2) and (3) PCT.
4. The teaching of D1 extends also to textile warp knitted items (p.4, l.26-29) having at least an area the knitting density of which differs from the remaining areas. Conversely, GB-A-1 303 359 (see p.2, l.119 - p.3, l.2) and US-A-3 693 378 (see Figs.4 and 5) also already depict warp knitting items having the structural features of fabrics according to independent claims 19, 20 or 17, 21, respectively.

To the extent the structural features of the fabrics to be protected by claims 17 to 21 are clear it would appear that the subject-matter defined by independent claims 17 to 21 would not meet the requirements of Article 33(2) PCT due to lack of novelty (see in this context also section VIII 1. below).

5. The subject-matter defined by claims 1 to 21 would be susceptible to industrial application and thus meet the requirements of Article 33(4) PCT.

Comments concerning section VII:

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents cited in the search report is not mentioned in the description, nor are these documents identified therein.

Comments concerning section VIII:

1. Claims 17 to 21 relate to a knitted product as such which should be defined in terms of its technical features (cf. PCT/GL/ISPE 5.04, 5.12, 5.26). The structural features to be imposed on the claimed product by the method of knitting same as set out by independent claims 17 to 19 are unclear and hence the scope to be conferred by these claims is indeterminate, contrary to the requirements of Article 6 PCT.
2. Taking full account of the findings under item V.4 above, a new concept linking the

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(SEPARATE SHEET)**

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various knitted articles according to independent claims 17 to 21 would not appear to exist, contrary to the requirements of Rules 13.1 and 13.2 PCT.

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## CLAIMS

1. A method for producing textile items with "tricot-Raschel-crochet" linear looms (TR2) for warp knitting, having at least a first bed (FNA) of needles (N, N1),  
5 comprising the step of manufacturing at least a textile item (CM), characterized in that it comprises the step of moving at least said first needle bed (FNA) during said step of manufacturing said textile item (CM).
- 10 2. The method according to claim 1, characterized in that it is executed on a machine (TR2) having further a second needle bed (FNP) and in that it further comprises the step of moving said second needle bed (FNP) during said step of manufacturing said textile item  
15 (CM).
3. The method according to <sup>claim 2</sup> ~~any of the preceding claims~~, characterized in that said needle beds (FNA, FNP) can move parallel to the stroke of the corresponding needles (N).
- 20 4. The method according to any of the preceding claims, characterized in that said needle beds (FNA, FNP) can move in order to vary the knitting density by varying the height of the sinking plane (PAB) with respect to the needles (N) sliding in the same beds  
25 (FNA, FNP).

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guides (GL) and/or sliding planes, slots and guiding pins inserted therein.

15. The loom according to any of the claims 8 to 14, characterized in that said means (GL, EX, Ex2, L1, L2) for moving the needle beds (FNA, FNP) are connected to the general drive of the machine (TR2).

16. The loom according to any of the claims 8 to 15, characterized in that said means (GL, EX, Ex2, L1, L2) for moving the needle beds (FNA, FNP) comprise a drive actuated by at least an electric motor, ~~for instance a brushless, stepless, linear, C.C. motor~~, connected to pushing, traction, torsion means, with direct, reduced, continuous, cyclical, controlled, gradual, micrometric movement or the like.

17. Warp hosiery or knitwear seamless tubular fabric or items, for instance dresses, sweaters and stockings, tights, bodices or the like, characterized in that they are obtained by a method according to any of the claims 1 to 7.

18. Textile warp knitted items characterized in that they have at least an areas whose knitting density differs from the remaining areas and which is generated by the shift of at least a bed (FNA, FNP) of needles (N) during the knitting process.

19. Textile link-knitted items characterized in that



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they have at least an interrupted knitted course resulting from the temporary shift of the sinking plane (PAB-4) of the needle bed (FNA, FNP) under the extreme lower position (FC) of needles (N4) during the knitting process, *according to claim 6.*

20. Textile warp knitted items characterized in that they have stitches made up of at least two yarns obtaining by feeding for two consecutive times the same yarn to the same needle (N), *according to claim 7.*

21. Tubular warp knitted items with differentiated density and elasticity, among which stockings, teddies, bodices, tights, socks and the like characterized by knitted structures with variable density for supporting, massaging and containing functions and for medical, paramedical and therapeutic needs and/or provided with areas of three-dimensional fabric in the form of single and multiple, even undulating, knitted reliefs, *obtained by a method according to any of the claims from 1 to 7.*